**What is SQL ?**

SQL is stands for structure query language

SQL is used to create a database and table structure.

SQL is case insensitive language.

Ex:

INSERT , insert, Insert

SQL follow mfCODD rules to create RDBMS and DBMS

SQL create relational database management systems

SQL create DBMS database management systems

SQL follow normalization to create relation ship between tables

1NF => simple table structure with primary key

2NF =>simple table structure with primary and forien key and provides relation between one table to another table

3NF=>same as second

**Difference b/w SQL and MYSQL**

**SQL :**

SQL stands for structure query language

SQL is case insensitive language

SQL create database and table structures

SQL used some functions

a) aggregate function

ex: sum(), avg(), max(), min(), count().

b) scalar function

ex: first(), last(), ucase(), lcase()

**MYSQL**

MYSQL is a database

MYSQL is used to stored information about users in form of tables.

MYSQL is case sensitive.

Ex: mysqli\_connect();

mysqli\_fetch\_array();

SQL commands or query :

Types of SQL command or query

a) DDL (data definitions language)

b) DML (data manupulation language)

c) DQL (data query language)

d) TCL (transactional control language)

**a) DDL : stands for data definition language**

commands in DDL

ex: 1) create

2) alter

3) drop

4) rename

5) change

6) truncate

**a) create : create is used to create database and table structure**

**1) how to create database**

**Syntax : create database databasename;**

**Ex:** create database mansidb;

**2) how to create table**

Table datatype chart

Fieldname datatype(size) keyconstraints

Id int(defaultsize(11)) pk auto\_increment

Name char, varchar(0-255) not\_null

Password varchar(0-255) not null

Address text

Message text

Mobile bigint(defaultsize(20))

Salary float,integer

Subtotal float

Date date

Appointment datetime

Photo varchar, blob

Syntax of create table :

Create table tablename

(

Id int(defaultsize) primary key auto\_increment,

Name varchar(255),

Password varchar(255)

) ;

Ex: create table user

(

userid int primary key AUTO\_INCREMENT,

name varchar(255),

firstname varchar(155),

lastname varchar(200),

password varchar(255),

address text,

message text,

mobile bigint

);

Alter : alter is used to add , modify or change column name in table

a) alter table user add photo blob;

b) alter table user add salary float;

c) alter table user add email varchar(255) after lastname;

d) alter table user add dob varchar(255) after password;

e) alter table user change dob dateofbirth varchar(255);

**rename : rename is used to change or rename our tablename**

**syntax :**

**rename table user to mansi\_user;**

**truncate :** truncate is used to delete all data from table after truncate we never rollback table data.

**Syntax : Tuncate table tablename;**

**Ex: truncate table mansi\_user;**

**drop :** drop is used to delete database structure and table structure and data.

After drop we never rollback structure and data of database and table.

**Syntax : drop database databasename;**

**Drop table tablename;**

Ex: drop database mansi;

Drop table mansi\_user;

**DML : dml stands for data manipulation language**

**Command in DML**

* + Insert
  + Update
  + delete

a) how to insert data

insert into tablename(columnname) values(‘values’);

eg:

create table mansi\_country

(

country\_id int primary key AUTO\_INCREMENT,

country\_name varchar(255)

)

insert into mansi\_country(country\_name) VALUES ('india')

insert into mansi\_country(country\_name) VALUES ('usa'),('uk'),('canada');

or

insert into mansi\_country VALUES ('null','srilanka'),('null','australia'),('null','pensilvenia')

How to delete data

a) delete from tablename; // all data deleted

b) delete from tablename where id=1;

c) delete from tablename where id in(1,2,3);

how to update data

update tablename set columnname=’value’ where id=6;

ex: update mansi\_country set country\_name='china' where country\_id=6;

**DQL : DQL stands for data query language**

**Select**

**a) how to select all table data**

select \* from mansi\_country;

b) how to select particular columns data

select \* from mansi\_country where country\_id=1;

c) how to select data from columns names

select country\_name from mansi\_country;

d) how to select columns with one data only

select country\_name from mansi\_country where country\_id=1;

e) how to select 2 data at once time

select \* from mansi\_country where country\_id in (1,6);

select \* from mansi\_country where country\_name in ('india','china');

f) how to select between data

select \* from mansi\_country where country\_id BETWEEN 1 and 100;

g) how to select range of data using limit

select \* from mansi\_country where country\_id limit 0,100;

**alias of column name**

select empname as FirstName from mansi\_employee;

**order by :**

order by is used to filter data in asending and decending order

ex: select \* from mansi\_country order by country\_name asc;

ex: select \* from mansi\_country order by country\_id;

ex: select \* from mansi\_country order by country\_id desc;

**group by :**

group by is used to filters data on group of columns there we apply group by

**ex:** write a query to find sum of salary of employee of diffent-2 department

select sum(salary),department from mansi\_employee GROUP by department;

**like operator**

like operator are used to searching of data from tables

like operator are used to search with wildcard or its keyword

a) search start name with ‘a’ alphabetic charcter

select \* from mansi\_employee where empname like 'a%';

select \* from mansi\_employee where empname like 'm%';

b) search name i.e find anywhere with ‘a’ alphabetic charcter

select \* from mansi\_employee where empname like '%a%';

c) search name end with h character

select \* from mansi\_employee where empname like '%h';

**SQL functions**

**There are two types of sql function**

**a) aggregate function**

**ex:** max() , min() , avg() , count(), sum().

Max() : max find maximum values

select max(salary) from mansi\_employee;

min() : min find a minimum values

select min(salary) from mansi\_employee;

find second highest salary subquery(query within another query)

select max(salary) from mansi\_employee where salary < (select max(salary) from mansi\_employee);

avg() : find average values

select avg(salary) from mansi\_employee.

Count() : count the values

SELECT count(empid) as totalemployee from mansi\_employee

Sum(): sum of numbers

select sum(salary) as sumofsalary from mansi\_employee;

select sum(salary),department from mansi\_employee group by department.

**b) scalar function**

**ex:** first() , last() , ucase() , lcase()

first() : find first rows in table

select first(empid) from mansi\_employee

last(): find last rows in tables

select last(empid) from mansi\_employee

ucase() : convert uppercase of data

select ucase(empname) from mansi\_employee

lcase() : convert lowercase of data

select lcase(empname) from mansi\_employee

**key constraints in SQL**

key constraints provides a limit on tables

types of key constraints

a) primary key

b) foreign key

c) unique key

d) compound key

primary key :

A pk is only defined once time in a table

A pk in always be auto increments

A pk never return a null values.

User

uid(pk) uname password gender photo

create table mansi\_category

(

category\_id int primary key AUTO\_INCREMENT,

category\_name varchar(255)

)

foreign key :

A fk is only defined more than once time in a table

A fk is provides relationship between one table to another table

A fk prodes relationship.

Mansi\_subcategory

Subcategory\_id(pk) category\_id(fk) subcategoryname

create table mansi\_subcategory

(

subcategory\_id int PRIMARY key AUTO\_INCREMENT,

category\_id int REFERENCES mansi\_category(category\_id),

subcategoryname varchar(255)

)

Mansi\_products

create table mansi\_products

(

product\_id int PRIMARY key AUTO\_INCREMENT,

category\_id int REFERENCES mansi\_category(category\_id),

subcategory\_id int REFERENCES mansi\_subcategory(subcategory\_id),

productname varchar(255),

productimages varchar(255),

qty int,

oldprice int,

offerprice int,

descriptions text

)

unique key:

compound key :

**sql joins :**

**sql joins join more than one table itelf with common field if data match first table with second table we can joins.**

**Types of join**

**a) inner join**

**b) join**

**c) outer join**

**a) left join**

**b) right join**

**c) full join**

**d) cross join**

**a) inner join :** inner join are used to join more than one table with commen field if data match from first table to second table join the data.

**Syntax : select table1.\*,columnname from table1 inner join on table2 on tbl1.commonfield=table2.commonfield;**

select mansi\_products.\*,category\_name from mansi\_products inner join mansi\_category on mansi\_products.category\_id=mansi\_category.category\_id;

or

select mansi\_products.\*,category\_name,subcategoryname from mansi\_products inner join mansi\_category on mansi\_products.category\_id=mansi\_category.category\_id inner join mansi\_subcategory on mansi\_products.subcategory\_id=mansi\_subcategory.subcategory\_id;

**b) join :**  join are used to join more than one table with common field if data match from first table to second table join the data.

**Syntax : select table1.\*,columnname from table1 join on table2 on tbl1.commonfield=table2.commonfield;**

select mansi\_products.\*,category\_name from mansi\_products join mansi\_category on mansi\_products.category\_id=mansi\_category.category\_id;

or

select mansi\_products.\*,category\_name,subcategoryname from mansi\_products join mansi\_category on mansi\_products.category\_id=mansi\_category.category\_id join mansi\_subcategory on mansi\_products.subcategory\_id=mansi\_subcategory.subcategory\_id;

**c) Outer join :**

**a) left join : left join is join firsttable of left rows matched with second table of left rows if data are matched join all data otherwise return null values.**

select mansi\_products.\*,category\_name,subcategoryname from mansi\_products left join mansi\_category on mansi\_products.category\_id=mansi\_category.category\_id left join mansi\_subcategory on mansi\_products.subcategory\_id=mansi\_subcategory.subcategory\_id;

**b) right join : right join is join secondtable of right rows matched with first table of right rows if data are matched join all data otherwise return null values.**

select mansi\_products.\*,category\_name,subcategoryname from mansi\_products right join mansi\_category on mansi\_products.category\_id=mansi\_category.category\_id right join mansi\_subcategory on mansi\_products.subcategory\_id=mansi\_subcategory.subcategory\_id;

**c) full join : note : full join is not supported in mysql database**

**d) cross join :** cross join is used to multiply firsttable of rows with second table of rows data .

**select \* from mansi\_products cross join mansi\_category;**

**select \* from mansi\_products cross join mansi\_category cross join mansi\_subcategory;**